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NOTES ON NORTH AMERICAN HEPATICAE. I.

ALEXANDER W. EVANS.

The specimens of Hepaticae sent to the writer for determination often include species of more than ordinary interest. So far as these belong to the New England flora attention is called to them in a series of "Notes on New England Hepaticae," published in the recent volumes of *Rhodora*. In the present series of notes it is proposed to take up species from other parts of North America. In some cases the species to be considered will be well known to American students but will be included because the specimens quoted increase our knowledge of their geographical distribution. In other cases more critical species will be discussed. Schiffner's arrangement of the Hepaticae in Engler & Prantl's "Die Natürlichen Pflanzenfamilien" will be followed.

1. *RICCIA DICTYOSPORA* M. A. Howe, Bull. Torrey Club **28**: 163. 1901.

Collected in July, 1907, at Glencoe, Missouri, by N. L. T. Nelson (*No.* 1895). This is the second known station for the species. The type locality is Athens, Georgia, where it was discovered by R. M. Harper in 1900.

2. *MARCHANTIA DISJUNCTA* Sulliv. Mem. Amer. Acad. N. S. **3**: 62. *pl.* 3. 1846.

Collected in June, 1909, at Etowah, Tennessee, on the sides of a narrow lateral ravine, by Miss Florence McCormick, and communicated by Professor C. R. Barnes. Since the original discovery of this species at Clairborne, Alabama, by W. S. Sullivant, in 1845, it has been recorded from Arkansas, Texas, Mexico, Cuba, Jamaica, and Guadeloupe.

3. *PALLAVICINIA BLYTTII* (Moerck) Lindb.

Collected in May, 1909, at Ucluclet, British Columbia, by J. Macoun (*No.* 80). This is the third station for North America. The first two stations, both in the state of Washington, were recently recorded by Miss Clark.¹ The species is widely distributed in Europe.

4. *JUNGERMANNIA ALLENII* L. Clark, Bull. Torrey Club **36**: 303. *pl.* 20. *f.* 1-11. 1909.

Collected in June, 1909, at Ucluclet, British Columbia, by J. Macoun (*No.* 104). The type locality for the species is Mount Ranier, Washington, where it was discovered in 1900 by O. D. Allen. It has since been collected in the same region by J. B. Flett and A. S. Foster. All of the specimens so far known are incomplete, so that the true generic position of the plant cannot yet be established.

1. Bull. Torrey Club **36**: 301. 1909.

5. *LOPHOZIA BADENSIS* (Gottsche) Schiffn. Lotos **51**: [7]. 1903. *Jungermannia badensis* Gottsche in Rabenhorst, Hep. Europ. No. 95. 1859.

Collected in July, 1905, on earth along the Montmorency River, Quebec, by J. Macoun (No. 9). This species, which is widely distributed in northern Europe, was recently reported by Bryhn¹ from King Oscar Land and Ellesmere Land in arctic America. Apparently no other North American stations are known. It belongs to a group of closely related species of which *L. Muellerei* (Nees) Dumort. may be considered the type. Schiffner² has recently studied this group carefully and distinguishes seven species, all of which except *L. turbinata* (Raddi) Steph. are now known from North America as well as from Europe. Apparently the closest ally of *L. badensis* is *L. Muellerei* itself, and Stephani maintains that they cannot well be separated. Lindberg, Kaalaas, and other European authorities, however, recognize both species. Macvicar,³ who has recently detected *L. badensis* in Great Britain, says that it differs from *L. Muellerei* in its larger leaf-cells with smaller trigones and in its lack of distinct underleaves. These differences show very clearly in Professor Macoun's specimens.

6. *LOPHOZIA LONGIDENS* (Lindb.) Macoun.

Collected in 1903, in the Asulkan Valley, British Columbia, by A. Brinkman (No. 153). Although this seems to be the first record for the species from western North America, it has already been reported from several localities in Nova Scotia, Maine, and New Hampshire.⁴ It is apparently not uncommon in alpine and subalpine regions.

7. *LOPHOCOLEA CUSPIDATA* (Nees) Limpr.

Collected in August, 1908, on a wet ledge, at Milford, Pennsylvania, by G. E. Nichols. This is apparently the first record for eastern North America, although the species is abundant along the Pacific Coast from California northward. It is very close to the dioicous *L. bidentata* (L.) Dumort. but differs in its autoicous inflorescence and in the more slenderly pointed divisions of its leaves. A full description of the species may be found in Howe's "Hepaticae and Anthocerotae of California," page 115.

8. *MICROLEJEUNEA ULICINA* (Tayl.) Evans. Mem. Torrey Club **8**: 176. 1902. *Jungermannia ulicina* Tayl. Trans. Bot. Soc. Edinburgh **1**: 115. 1844. *Lejeunea ulicina* Tayl. in G. L. & N Syn. Hep. 387. 1845.

1. Rep. Second Norwegian Arctic Exped. in the "Fram" **11**: 32. 1906.

2. Beiträge zur Aufklärung einer polymorphen Artengruppe der Lebermoose. Verhandl. der. k. k. zool.-botan. Gesellsch. in Wien **54**: 381-405. 1904.

3. Jour. Bot. **45**: 63. 1907.

4. See Evans, Rhodora **9**: 59. 1907.

Collected in August, 1908, on trees, at Sandy Cove, Nova Scotia, by Mrs. J. D. Lowe (*No. 26* in part). Mrs. Lowe announced her discovery of this interesting species at the Baltimore meeting of the Sullivant Moss Society, in December, 1908, and has already published a note about it in the *BRYOLOGIST* for March, 1909. As she remarks, the North Carolina station, cited by Lindberg in 1875, belongs to another species. Her record, therefore, is the first authentic one for North America. The type locality for the species is in Ireland but it is now known from numerous stations in western Europe. Mrs. Lowe's specimens are entirely sterile but are quite sufficient for identification.

The species is a very typical member of the genus *Microlejeunea*. The stems are sparingly and irregularly pinnate, with widely spreading branches, and average about 0.035 mm. in diameter. The leaves, which are distant to contiguous, spread very slightly from the axis and show a strongly arched keel. The lobe measures about 0.2 x 0.13 mm. and is ovate in outline, the apex being either rounded or very bluntly pointed. It is attached by an almost longitudinal line and arches part way across the axis. The margin is either entire or vaguely crenulate from projecting cells. The lobule is relatively large, measuring about 0.15 x 0.1 mm. and is strongly inflated. It agrees with the lobe in being ovate in outline. The free margin is either involute or appressed to the lobe. At the apex it is tipped with a single cell in the form of a blunt, more or less curved tooth, and at the base of this tooth on the inner side is a slight depression in which a hyaline papilla is situated. The leaf-cells average from 16 μ to 18 μ in length and about 14 μ in width. They are more or less convex and have thin walls, although minute trigones may usually be demonstrated. In many cases the cell structure is uniform throughout the lobe but sometimes one or two basal ocelli may be detected. When two are present they are situated end to end. The ocelli differ from ordinary cells in their more granular contents and are often difficult to distinguish. Similar ocelli occur sparingly in French specimens collected by Camus, but they are apparently absent in most of the European material examined by the writer. The underleaves of *M. ulicina* are distant and measure about 0.8 x 0.5 mm. They are ovate in outline and deeply bifid, the divisions being slender and pointed, usually four cells long, two cells wide at the base and tipped with two cells end to end.

For the differential characters separating *M. ulicina* from *M. bullata* (Tayl.) Evans and *M. Ruthii* Evans, reference may be made to the writer's

paper on the "Lejeuneae of the United States and Canada," published in the eighth volume of the Memoirs of the Torrey Botanical Club, in 1902. It is the fifth species of the Lejeuneae to be recorded from Canada, the others being *Lejeunea cavifolia* (Ehrh.) Lindb., *L. patens* Lindb., *Cololejeunea Biddlecomiae* (Aust.) Evans, and *C. Macounii* (Spruce) Evans.

9. *FRULLANIA INFLATA* Gottsche in G. L. & N. Syn. Hep. 424. 1845. Evans, Trans. Conn. Acad. 10: 10. *pl.* 3. 1897.

Collected in August, 1899, at Cloudercroft, Sacramento Mountains, New Mexico, by E. O. Wooton, growing on the bark of an oak; also in July, 1901, at Granite Falls, Minnesota, by J. A. Anderson (*No.* 52), growing on rocks; also, in August, 1909, at Walnut, Fairfield County, Ohio, by E. G. Miller, growing on the bark of an elm. The three stations just recorded add considerably to the known range of the species. It bears a strong resemblance to the very common *F. eboracensis* Gottsche and is probably often confused with this species. It is very distinct, however, in its autocious inflorescence and in its leaf-cells, which show trigones but no intermediate thickenings. In *F. eboracensis* the inflorescence is dioicous and the leaf-cells have both trigones and intermediate thickenings, making the contours of the cell-cavities irregular.

10. *ANTHOCEROS LEVIS* L.

Collected in February, 1908, at Walsingham, Bermuda, by Stewardson Brown (*No.* 430). Although this is the first member of the Anthocerotales to be definitely recorded from Bermuda, an immature *Anthoceros*, apparently also *A. levis*, was collected on the island in 1900 by W. G. Farlow.

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SOME LOPHOZIAS OF THE VENTRICOSA GROUP.

ANNIE LORENZ.

[Read at the Meeting of the Sullivant Moss Society at Boston, Dec. 30, 1909.]

The three species here discussed, *Lophozia longidens* (Lindb.) Macoun, *L. longiflora* (Nees.) Schiffner, and *L. confertifolia* Schiffner, have all been announced for New England by Dr. Evans in Rhodora, but as they have been hitherto but scantily figured, some figures and further notes on their distribution and characters may be of interest.

The first two mentioned were originally considered as varieties of *L. ventricosa*, while the third approaches *L. alpestris*. But as they are quite distinguishable and constant in their typical forms, and each has its characteristic habitat, the modern tendency to segregation seems quite justified.